

## **CLAIMS**

1. A cartridge having an inlet and an outlet, for connection in line in a hemodialysis machine for passage of water, or a solution through the cartridge, the cartridge containing sodium bicarbonate in solid form, and a component selected from  
5 the group consisting of, an acid, acid anhydride in solid form, and carbon dioxide gas in an amount to prevent a temporary increase in pH of a dialysis solution produced utilizing the cartridge.
2. The cartridge of Claim 1, wherein the acid is in powder form.  
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3. The cartridge of Claim 1, wherein the acid is citric acid.
4. The cartridge of Claim 1, wherein the acid is an organic acid.
- 15 5. The cartridge of Claim 1, wherein the acid is tartaric acid.
6. The cartridge of Claim 1 containing at least 0.2g of the component per 1000g of sodium bicarbonate.
- 20 7. The cartridge of Claim 1, wherein the cartridge contains at least 0.5g of the component per 1000g of sodium bicarbonate.
8. A method of preventing a temporary increase of pH in a dialysis solution being produced in a hemodialysis machine from different component sources  
25 including a cartridge containing solid sodium bicarbonate, the method comprising the step of including in the cartridge, a component selected from the group consisting of an acid or acid anhydride in solid form, and carbon dioxide gas.
9. The method of Claim 8, wherein the acid is in powder form.  
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10. The method of Claim 8, wherein the acid is citric acid.

11. The method of Claim 8, wherein the acid is an organic acid.
12. The method of Claim 8, wherein the acid is tartaric acid.
- 5 13. The method of Claim 8 containing at least 0.2g of the component per 1000g of sodium bicarbonate.
14. The method of Claim 8, wherein the cartridge contains at least 0.5g of the component per 1000g of sodium bicarbonate.
- 10 15. The method of Claim 8 including the step of introducing carbon dioxide gas to the cartridge as dry ice.
16. A hemodialysis machine comprising a cartridge having an inlet and an outlet, for connection in line in a hemodialysis machine the cartridge containing sodium bicarbonate in solid form, and a component selected from the group consisting of, an acid, acid anhydride in solid form, and carbon dioxide gas in an amount to prevent a temporary increase in pH of a dialysis solution produced utilizing the cartridge.
- 20 17. The hemodialysis machine of Claim 16, wherein the acid is in powder form.
18. The hemodialysis machine of Claim 16, wherein the acid is citric acid.
- 25 19. The hemodialysis machine of Claim 16, wherein the acid is an organic acid.
20. The hemodialysis machine of Claim 16 wherein the acid is tartaric acid.
- 30 21. The hemodialysis machine of Claim 16 containing at least 0.2g of the component per 1000g of sodium bicarbonate.

22. The hemodialysis machine of Claim 16, wherein the cartridge contains at least 0.5g of the component per 1000g of sodium bicarbonate.

23. A cartridge for use in a hemodialysis machine comprising:  
5 sodium bicarbonate in solid form; and  
at least 0.2 g per 1000 g of sodium bicarbonate of a component selected from the group consisting of acid, acid anhydride, or carbon dioxide.

24. The cartridge of Claim 23, wherein the acid is in powder form.

25. The cartridge of Claim 23, wherein the cartridge contains at least 0.5g  
10 of the component per 1000g of sodium bicarbonate.